PEACE/WILLISTON
FISH & WILDLIFE
COMPENSATION
PROGRAM

BC hydro

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Wildlife Program
Annual Report 1992/93

F. B. Corbould
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The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

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This report has been approved by the Peace/Williston Fish and Wildlife Compensation Program Fish Technical Committee.

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WILDLIFE PROGRAM
ANNUAL REPORT
1992-1993

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EXECUTIVE SUMMARY

The fourth year of the Peace/Williston Wildlife Compensation Program, and the third full year of work has now concluded. During 1992/93, two full time biologists (Mari Wood and Fraser Corbould) were employed by the Wildlife Program. Tracey Martin, a university co-op student, was hired for a summer term. In addition, a number of individuals and companies were contracted to work on specific projects, such as Habitat Mapping, Upland Furbearer and Forage Enhancement (Parsnip) projects.

Savings identified from projects earlier in the year enabled supplemental projects to be initiated and some existing projects to be expanded. Technical Committee meetings were held quarterly to update committee members on the Wildlife Program and discuss current issues.

The public consultation process is an important means of informing the public about the Compensation Program, and for generating public input. A variety of techniques were employed to successfully present the program to the public in the 1992/93 fiscal. Open Houses presenting informative display panels and opportunities for informal discussions with program biologists and Steering and Technical Committee members were held in Prince George, Ft. St. John, Mackenzie and Chetwynd; approximately 180 people attended the four open houses. Other avenues of public consultation used by the Wildlife Program included formal presentations to stakeholders, media coverage (TV, radio and newspaper), and *NatureLine* publications.

In total, fourteen projects were undertaken by the Wildlife Program in 1992/93. Continuing projects comprised the majority of projects, however four new projects were also introduced.

This year's Forage Enhancement projects in the Williston watershed consisted of prescribed burning, manual cutting and vegetation monitoring. In the Peace, 225 ha were burnt at Branham Slide, and helicopter pads were established at future burn sites on Butler Ridge. Post-burn vegetation monitoring was conducted for the second consecutive year at the Bevel Creek (Finlay drainage) burn site. Surveys of future potential burn sites in the Finlay and Peace drainages were also carried out. Forage enhancement in the Parsnip area involved manual slashing of 42 ha of overmature willow in the Omineca, Misinchinka and Pack river areas.

The first year of monitoring snag decay, and the layout of transects for breeding bird and furbearer surveys were completed on the Donna Creek/Forestry Biodiversity Project. An updated working plan for the project and detailed maps of the blocks were also produced. Breeding bird surveys and vegetation monitoring were postponed until 1993 due to delayed harvesting of the third treatment block and site preparation of all treatment blocks. Poor weather and snow conditions forced the postponement of the winter furbearer surveys until next year. This is a cooperative project with Fletcher

Challenge and the Habitat Conservation Fund.

The second year of the Wetlands Enhancement program included conducting inventories, wetland habitat assessments, and identification of potential enhancement sites for waterfowl. Waterfowl enhancements included the installation of floating islands, nestboxes and loafing logs at nine locations within the watershed. Floating islands established in 1991 exhibited nesting use by Canada geese. A report summarizing the waterfowl inventories and enhancement work was completed. Many wetland areas were also assessed for potential aquatic furbearer (eg. beaver, muskrat) enhancements. A cooperative project, with Ducks Unlimited and a local trapper, to enhance aquatic furbearer habitat was completed in the Blackwater Creek area. In cooperation with the provincial Wildlife Watch Program, a wildlife viewing sign and shelter was produced for Mugaha marsh, north of Mackenzie.

Planning the production of a wildlife viewing sign at Dunlevy Creek (Peace) [Dunlevy Wildlife Viewing] and identification of potential elk transplant sites [Elk Transplant Feasibility Project] in the Finlay drainage were initiated. In addition, the purchase of 180 acres of important wildlife habitat, west of Adams Creek (Peace), was finalized [Land Acquisition].

Monitoring of radio-collared Stone's sheep, elk and caribou continued in the Peace Arm area [Peace Habitat Selection]. Surveys of the transplanted sheep herd indicated over 20 sheep from the original 1990 and 1991 transplants residing in the Mt. Monteith area. To supplement the herd, an additional 6 sheep were transplanted to the area; three ewes were equipped with a radio-collar.

A problem analysis identifying research, enhancement, and integrated management opportunities and priorities for upland furbearers (eg. marten, fisher, wolverine) was completed [Upland Furbearer Project]. This report will provide a foundation for the development of a sound and comprehensive upland furbearer program.

The second year of the Omineca Mtn. Caribou Habitat Selection project has now concluded. Caribou inhabiting the Wolverine Range in the southern part of the study area continued to use smaller home-ranges than caribou in the northern part, and snow depths appear to play a major role in caribou habitat use. Winter inventories were conducted on the Wolverine Range and in the Chase Mtn/Butler Range area. Preliminary information from telemetry flights and inventories has already been used in a number of planning processes (eg. Protected Area Strategy, Omineca Land Resource Use Plan, road and cutblock layout).

1992/93 was the third year of habitat mapping in the Williston watershed. This year's project involved the Omineca River area, and was a cooperative effort with B.C. Environment, Fletcher Challenge, and B.C. Forest Service. Mylar copies of the Ospika habitat maps were produced, and Peace habitat mapping continued. Habitat mapping

assists in the identification of important habitats and potential enhancement sites for wildlife.

A total count winter inventory [Russel Sheep Inventory] of the Russel Range, west of the Finlay River, classified 350 Stone's sheep, 211 mountain goats, and 26 caribou. Information gained from the inventory will help identify potential enhancement sites, evaluate the Russel sheep population as a source for possible future transplants, and aid in coordinated resource planning (eg. access management).

A total of $374,631 was expended during the 1992/93 fiscal, an over expenditure of $4,631 (1.3%). Three-quarters (74%; $276,996) of program expenditures were designated to projects, and less than 10% ($35,136) was directed to administration. Outside funding played an important role in many of the projects undertaken by the Compensation Program. Agencies that worked cooperatively with the Compensation Program, and supplied time and/or financial support, included B.C. Environment, Fletcher Challenge, Habitat Conservation Fund, and B.C. Forest Service.

TABLE OF CONTENTS

Page #

EXECUTIVE SUMMARY i

INTRODUCTION 1

PROGRAM MANAGEMENT
- A. Staffing 2
- B. Contractors 2
- C. Program Planning 3
- D. Other 3

PUBLIC CONSULTATION 3
- A. Open Houses 3
- B. Meetings 4
- C. Media Coverage/Press Releases 4
- D. NatureLine 4
- E. Other 4

PROJECTS SUMMARY 5
- 1. Forage Enhancement - Peace 5
- 2. Forage Enhancement - Finlay 5
- 3. Forage Enhancement - Parsnip 5
- 4. Elk Transplant Feasibility 5
- 5. Donna Creek/Forestry Biodiversity 6
- 6. Wetlands Enhancement 6
- 7. Dunlevy Wildlife Viewing 7
- 8. Land Acquisition 7
- 9. Peace Habitat Selection - Stone's Sheep, Caribou, Elk 7
- 10. Upland Furbearer Project 8
- 11. Caribou Habitat Selection - Omineca Mountains 8
- 12. Ungulate Diet Analysis 9
- 13. Habitat Mapping 9
- 14. Russel Sheep Inventory 9

FINANCIAL SUMMARY
- A. 1992/93 Expenditures 10
- B. Outside Funding 12

APPENDIX 13

INTRODUCTION

The fourth year of the Peace/Williston Wildlife Compensation Program, and the third full year of work has now concluded. The Compensation Program is a B.C. Hydro/B.C. Environment joint venture to enhance and protect wildlife resources affected by the construction and operation of the W.A.C. Bennett and Peace Canyon dams. The Wildlife Program is financed by the interest from a $11 million fund established by B.C. Hydro to compensate fish and wildlife resources in the Williston watershed: $5 million for wildlife and $6 million for fisheries.

A broad range of projects was undertaken by the Wildlife Program this year. Continuing projects included Caribou Habitat Selection (Omineca Mountains), Peace Habitat Selection (sheep, elk and caribou), Donna Creek/Forestry Biodiversity, and Ungulate Diet Analysis. Projects that are continuing, but occurring at new sites, include Forage Enhancement (both prescribed burning and manual cutting), Wetlands Enhancement, and Habitat Mapping. New projects in the 1992/93 fiscal are Upland Furbearer, Elk Transplant Feasibility, Dunlevy Wildlife Viewing, and Russel Sheep Inventory.

For purposes of summarizing program expenditures, the Wildlife Program was divided into six categories: administration, planning, public consultation, inventory, enhancement, and evaluation. Some of the projects fall into a single category (eg. Donna Creek/Forestry Biodiversity [evaluation], Habitat Mapping [inventory]), while others span the spectrum of project categories depending on the stage of the project (eg. Forage Enhancement; site assessment [inventory], prescribed burning or manual cutting [enhancement], and post-treatment vegetation monitoring [evaluation]).

This report provides an overview of the Wildlife Compensation Program for the 1992/93 fiscal year (April 1, 1992 to March 31, 1993), including a project and financial summary. As well, a list of all reports produced by or for the Wildlife Program, or relating to the Williston watershed, is presented in the Appendix.

PROGRAM MANAGEMENT

A. STAFFING

The Wildlife Program, based in Prince George, employed two full-time temporary biologists and a university co-op student in 1992/93:

* Mari Wood was officially appointed as the acting Program Biologist in May/92, replacing Rick Dawson who had left the Compensation Program in January/92.
* Fraser Corbould was hired May 4/92 as a wildlife biologist on a 6-month Hydro contract to supplement staffing. Fraser's term was extended for one year on a full time temporary basis on November 4/92.
* Tracey Martin was hired May 11/92 for a four month term through the S.F.U. co-op student program. Tracey worked primarily on the wetlands and Omineca caribou projects, and assisted with other projects.

B. CONTRACTORS

A number of individuals and companies were contracted to work on specific projects:

* Janet Besherse: A native contractor from the Germansen Landing area, Janet received the mechanical forage enhancement contract for the Omineca River area.
* DQB Consultants (Dana Becker): Dana was contracted to prepare a problem analysis for upland furbearers (eg. marten, lynx) in the Williston watershed.
* JMJ Holdings (Evan McKenzie): Evan was contracted as the vegetation specialist for the Omineca Habitat Mapping Project.
* Bruce Kanary: Bruce received the mechanical forage enhancement contract for the Misinchinka River area.
* Drew Martin: Drew was re-hired to complete the Pack River forage enhancement (1991/92 project). The contract was not completed in the 1991/92 fiscal due to poor weather conditions.
* Linda Murray: Linda was contracted to collect snag decay data and to layout transects for breeding bird and furbearer surveys for the Donna Creek/Forestry Biodiversity Project.
* R.J. Enterprises (Rod Backmeyer): Rod was contracted to continue the monitoring of Stone's sheep, elk and caribou on the north and south sides of the Peace Arm. Rod was also re-hired as the wildlife specialist to complete the wildlife mapping of the Peace Habitat Mapping Project (1991/92 project). In addition, Rod was contracted by the Compensation Program, for Fletcher Challenge, as the wildlife specialist for the Omineca Habitat Mapping Project.
* Carol Thomson: Carol was again contracted as the vegetation specialist to complete the vegetation mapping of the Peace Habitat Mapping Project (1991/92 project). Carol had originally been sub-contracted by the Carrier-Sikani Tribal Council in the 1991/92 fiscal to work on the project.

* T.M. Thompson Division (Steve Lipscomb): Steve produced mylar copies of the habitat capability maps for the Ospika drainage.

C. PROGRAM PLANNING

Program budget forecasts and expenditure summaries were prepared throughout the year. As savings were identified from prescribed burning and other projects, supplemental projects were initiated (Russel Sheep Inventory, Stone's Sheep Transplant, Elk Transplant Feasibility) and some existing projects were expanded. Technical Committee meetings were held quarterly to update committee members on the Wildlife Program and discuss current issues. Program biologists also met periodically with Habitat and Wildlife Branch (B.C. Environment) personnel to discuss Williston concerns and interests. Updates were made to the Five Year Plan (1993/94 to 97/98) and Progress To Date (1988/89 to 1992/93) spreadsheets. Proposals were drafted to solicit funding from the Habitat Conservation Fund for support of the breeding bird surveys (Donna Creek/Forestry Biodiversity Project) and the Omineca River manual forage enhancements (Parsnip Forage Enhancement).

D. OTHER

Williston Wildlife purchased two snowmobiles for use in present and future projects. Snowmobiles are essential in assisting us in assessing winter habitats, monitoring forage enhancement sites, collecting pellet samples, retrieving radio-telemetry collars, tracking animal movements, and accessing areas to measure snow depths.

PUBLIC CONSULTATION

The public consultation process is an important means of informing the public about the Compensation Program, and for generating public input. A variety of techniques were employed to successfully present the program to the public in the 1992/93 fiscal. The public's concerns and suggestions were taken into account when planning activities and projects. Local people of the Williston watershed were also consulted as an invaluable source of local information on a project specific basis.

A. OPEN HOUSES

Open houses were held in Ft. St. John, Chetwynd, Mackenzie and Prince George. Invitations were announced through local papers, *NatureLine* and letters to stakeholder groups and individuals. Approximately 180 people attended the four open houses: Chetwynd (20), Fort St. John (40), Mackenzie (55), and Prince George (65). Program biologists, and Steering Committee and Technical Committee members were available for informal discussions involving projects (past/present/future), program direction, and other questions pertaining to the Compensation Program. Display panels with photographs and explanatory texts were used to present the Compensation Program structure and actual

projects through visual means. Questionnaires were provided for attendees; a summary of the questionnaire will be prepared by B.C. Hydro External Relations.

B. MEETINGS

Slide shows outlining the goals, objectives and projects of the Williston Wildlife Program were presented to the Tsay Keh Dene native band and the Spruce City Wildlife Federation (Prince George). A presentation of projects relating to forestry/wildlife interactions was also presented at a Dawson Creek Rod and Gun Club seminar. Preliminary findings of the Omineca Mountains caribou radio-telemetry project were presented at the Omineca Land Resource Use Plan. In addition, meetings in the field and office were held with various groups and individuals. These included B.C. Environment, B.C. Forest Service, Fletcher Challenge Canada Ltd., Ducks Unlimited, Mackenzie/McLeod Lake Trappers Association, and local trappers and guide outfitters.

C. MEDIA COVERAGE/PRESS RELEASES

Wetland enhancements in the Parsnip area were filmed by CKPG, a Prince George TV station, and aired locally. The film clip featured the installation of floating islands and nestboxes for waterfowl. A CBC-Radio reporter participated in a caribou radio-telemetry tracking flight and, on a morning talk-show, discussed the methods and reasons for locating these animals. A number of articles were written for the Hunting and Recreation Supplement of the Prince George Citizen newspaper describing the various wildlife projects undertaken by the Compensation Program.

D. NATURELINE

The third and fourth issues of the *NatureLine* were released in October/92 and March/93, respectively. Wildlife projects featured included the Omineca Caribou Habitat Selection Project, Donna Creek/ Forestry Biodiversity Project, Habitat Mapping Project and Land Acquisitions. These editions also introduced a 1992/93 budget summary (No. 3), an explanation of the project selection process (No. 4), and a section providing general information on fish and wildlife species in the Williston watershed (No. 4).

E. OTHER

Williston Wildlife personnel displayed an exhibit of the Compensation Program's projects at a local mall in Prince George for Environment Week.

PROJECT SUMMARY

1. FORAGE ENHANCEMENT - PEACE

One prescribed burn at Branham Slide on the north side of the Peace Reach was conducted in May, 1992, by the Dawson Creek Forest Service. Lack of Compensation staff involvement (due to staffing shortage) resulted in only one of the three proposed areas being burnt. A post-burn assessment of the site was performed by Compensation and B.C. Environment staff in July. Helicopter pads were built by contracted mop-up crews at future burn sites on Butler Ridge. Due to weather and stand conditions at the time, 25% of the proposed 900 hectares at Branham Slide was burnt. Air and ground observations were made of previous wildfire and prescribed burns, and future potential burn sites in the Peace area. Pre-burn surveys in October and March, and planning for the 1993 Peace Arm spring burns were initiated.

2. FORAGE ENHANCEMENT - FINLAY

The second year of vegetation monitoring at the Bevel Creek burn site was completed. In areas where overstory dominance was reduced by burning, herb and shrub vigour and growth increased. Browsing sign was notable on shrub species (eg. saskatoon, Douglas maple, willow). However, during the two consecutive post-treatment years, no significant differences in vegetation composition or percent cover have been observed. Data collected from both years was summarized by the Habitat Inventory Branch (B.C. Environment - Victoria). [The site will be resurveyed in 3 years.] Pre-burn surveys of sites scheduled for burning in spring 1993 in the Finlay drainage were performed by Compensation, B.C. Environment, and Mackenzie Forest Service personnel.

3. FORAGE ENHANCEMENT - PARSNIP

The Pack River manual forage enhancement contract was completed; a total of 12 ha was cut. This 1991/92 project was postponed until the spring of 1992 due to heavy snow conditions the previous fall. Manual cutting of 15 ha of overmature willow along the Omineca River was completed by a contractor from Germansen Landing. Three additional riparian sites along the Omineca River were proposed and accepted by the Forest Service for fall burning; burning was postponed until 93/94 due to weather conditions and availability of Forest Service staff. A proposal was also submitted to the Habitat Conservation Fund for financial cooperation of our 5-year forage enhancement plan in the Omineca River valley. Sites adjacent to the Misinchinka River were assessed and identified for enhancement; a total of 15 ha of willow was cut.

4. ELK TRANSPLANT FEASIBILITY PROJECT

The feasibility of transplanting 50-60 elk into the Finlay drainage area was investigated. Potential transplant sites in the Finlay drainage were surveyed; the Akie and

Ingenika river areas are possible candidates. The objective of a transplant is to supplement small existing elk herds in the Finlay area, thereby creating a larger, healthier herd and increasing the reproductive potential and genetic diversity of the population.

5. DONNA CREEK/FORESTRY BIODIVERSITY PROJECT
(formerly Cavity Nester Habitat Enhancement Project)

Harvesting of the third treatment block, and post-logging site preparation on the other two previously logged blocks by Fletcher Challenge, delayed the layout of transects until fall and postponed the breeding bird surveys and vegetation monitoring until 1993. The working plan for the project was updated.

The first year of snag deterioration monitoring was completed during the summer. Snags were assessed according to guidelines established by the Wildlife Tree Committee of B.C., with alterations deemed necessary by Compensation staff and contractor to successfully monitor use of snags by wildlife.

Transects were established in the fall for future breeding bird and furbearer surveys. Maps of the blocks were also produced identifying topographic contours; ecosystem association boundaries; forest types; and the location of roads, creeks, transects, green-tree residual islands, and treatment and old-growth areas. Winter furbearer surveys were postponed for the year due to poor weather and snow conditions.

This is a cooperative project with Fletcher Challenge (Mackenzie) and the Habitat Conservation Fund. A progress report and a proposal for continued funding were submitted to the Habitat Conservation Fund (HCF). HCF funding was approved for the breeding bird surveys in the 1993/94 fiscal year.

6. WETLANDS ENHANCEMENT PROJECT

Inventories, wetland habitat assessments and identification of potential enhancement sites for waterfowl were continued for the second year in the Parsnip drainage. Enhancements for ducks and geese involved the installation of 4 floating islands, 23 nestboxes and 9 loafing logs at nine locations within the watershed. Three of the four floating islands installed in the summer of 1991 showed signs of nesting use by Canada geese; islands are not usually used until the second or third year of establishment. A project to create an earthen island from an existing peninsula was postponed due to unfavourable water levels. A report summarizing the waterfowl inventories and enhancement work was completed by the summer co-op student.

A number of wetland areas were also assessed for potential aquatic furbearer (eg. beaver, muskrat) enhancement. A cooperative project, with Ducks Unlimited and a local trapper, to enhance aquatic furbearer habitat was completed in the Blackwater Creek area. Areas of shallow water were deepened to facilitate access to houses and food caches in

winter. In addition, a meeting was held with the Mackenzie/McLeod Lake Trappers Association to address and identify potential enhancement sites and methods for aquatic furbearers. The Association provided some areas to be assessed, but, no sites were found to be suitable for enhancement.

Funding from the provincial Wildlife Watch Program facilitated the production of a wildlife viewing sign and shelter for Mugaha marsh, north of Mackenzie; sign design and text were developed by Compensation personnel. Installation of the sign and shelter is scheduled for spring 1993.

7. DUNLEVY WILDLIFE VIEWING

Planning the production of a wildlife sign for the Dunlevy Creek area was initiated. Potential sites for the sign were assessed.

8. LAND ACQUISITION

The purchase of 185 acres west of Adams Creek on the north side of the Peace Arm was finalized in the spring after initiation in 1991/92. Discussions were initiated with the Rocky Mountain Elk Foundation (R.M.E.F.) and Nature Trust for the possible acquisition of another important wildlife area, the "Beattie" property between Adams and Aylard creeks. The R.M.E.F. purchased the property in 1993.

9. PEACE HABITAT SELECTION - STONE'S SHEEP, ELK AND CARIBOU

Monitoring of radio-collared ungulates on the Peace Arm continued by contractor on a monthly basis. Collared animals included 7 Stone's sheep (source herd [4], transplanted herd [3]), 4 Rocky Mountain elk, and 5 woodland caribou. Sheep, from both herds, used alpine habitats in the summer. However in winter, transplanted sheep (Mt. Monteith area) used rock outcroppings exclusively, while sheep on the north side of the Peace Reach (source herd) chose rock and alpine areas as well as timbered bluffs, subalpine, and shrub/grassland areas. Total count surveys of the transplanted herd in June and December indicated over 20 sheep from the original 1990 and 1991 transplants residing in the Mt. Monteith area. To supplement, and hopefully increase the reproductive potential of the herd, an additional 6 sheep (4 ewes, 2 lambs) were transplanted to the area in March 1993; three of the ewes were equipped with collars.

Similar to the previous years' observations, radio-collared cow elk on the north side of the Peace Reach had restricted home ranges but rather marked differences in their seasonal habitat use. Elk utilized mixed-wood forests during the summer and rutting periods, and shrub/grassland areas in the winter. In contrast to previous years, elk used immature aspen stands during calving.

Telemetry flights in 1992/93 indicated that radio-collared caribou in the Peace utilized

subalpine and alpine habitats at calving; subalpine and lowland pine areas in spring and early winter; and mixed conifer forests, black spruce swamps and alpine areas during late winter.

10. UPLAND FURBEARER PROJECT

A problem analysis to provide a foundation for the development of a sound and comprehensive upland furbearer program was contracted and completed. Priorities for research, enhancement, and integrated management opportunities were identified. Concerns and information needs of local trappers, furbearer specialists, and wildlife and forest resource managers were also documented. Upland furbearer species under consideration included marten, lynx, fisher, wolverine, fox, coyote, wolf and weasel. A project is scheduled to be initiated within the next few years.

11. CARIBOU HABITAT SELECTION - OMINECA MOUNTAINS (formerly West Williston)

Radio-collared woodland caribou, in the Omineca Mountains on the west side of the Williston Reservoir, were monitored monthly by Program staff. One caribou died, and a second could not be relocated (possibly a collar malfunction), reducing the number of collared caribou to nineteen. Another female caribou was captured and collared in January raising the number to twenty. Caribou inhabiting the Wolverine Range in the southern part of the study area continued to use smaller home-ranges than caribou in the northern part.

In the spring, most caribou exhibited fidelity to past calving locations and habitats (subalpine areas). Caribou were found wintering, prior to March, in both the lowland pine and windswept alpine habitats in the southern section of the study area, and only the lowland pine stands in the north. In March, collared caribou were found primarily on windswept alpine slopes throughout the study area. The use of lowland pine flats in winter appears to be correlated to snow depths. During low snow pack years (90/91 and 92/93), caribou were observed using these habitats. In 1991/92, when snow depths were deeper, windswept alpine ridges were predominantly used. An interim report on the Omineca Mountains caribou is presently being drafted.

Within the Omineca Mountains study area, total count inventories of caribou were conducted on the Wolverine Range (south part) and in the Chase Mtn/Butler Range area (north part); a total of 463 caribou were classified to age and sex. An area of lowland pine flats near Mackenzie (Kennedy Siding) was also surveyed for early winter use by caribou; 97 caribou were observed.

Preliminary information from monitoring collared animals and from inventories, has already been used in a number of planning processes (eg. Protected Area Strategy, Omineca Land Resource Use Plan, road and cutblock layout). Funding for some telemetry and inventory flights was provided by the Wildlife and Habitat Branches of B.C. Environment, Prince George.

12. UNGULATE DIET ANALYSIS

Ungulate (caribou, sheep, elk and deer) pellet samples collected in the winter of 1991/92 were analyzed by the University of Washington Habitat Lab. Pellet samples were collected from winter ranges in the Peace Arm, Omineca Mountains and Ospika River areas to identify important forage species of these ungulates. A report summarizing the past three years data was initiated.

13. HABITAT MAPPING - OMINECA, PEACE AND OSPIKA

The 1992/93 fiscal was the third year of habitat mapping in the Williston watershed. Mapping provides wildlife suitability and capability ratings for the areas under review, and therefore assists in the identification of potential enhancement sites and important habitats for the wildlife species considered.

This years project involved the Omineca River area. The project is a cooperative effort with B.C. Environment (Victoria)[B.C.E.], Fletcher Challenge (Crofton)[F.C.C.L.], and B.C. Forest Service (Mackenzie). B.C. Environment provided the pedologist (soil specialist), and the Compensation Program and F.C.C.L. contracted the vegetation and wildlife specialists, respectively. The field work, and soils and vegetation mapping components of the project were completed. Delays in the mapping process precluded completion of the wildlife portion. F.C.C.L. will re-contract and monitor the wildlife mapping, and also digitize and produce the final maps.

Delays during the soils and vegetation mapping phases of the Peace mapping project (1991/92 project) necessitated the project to be continued this year. Further delays in the vegetation mapping portion prevented the wildlife mapping phase from being completed. The mapping is scheduled for completion in 1993/94.

Photographic slides of the completed Ospika drainage maps (90/91 project) were received from Fletcher Challenge. Mylar black-and-white maps were also produced for ease in future reproductions.

14. RUSSEL SHEEP INVENTORY

In March 1993, a total count helicopter survey of the Russel Range, west of the Finlay River, was conducted by Compensation and Wildlife Branch (B.C.E., Ft. St. John) personnel. A total of 350 Stone's sheep and 211 mountain goats were observed and classified to sex and age. A summer count of the area in 1985 revealed a similar number of goats and approximately 50 more sheep. Incidental wildlife species including 26 caribou, five elk and two wolves were also recorded. Information gained from the inventory will help to identify potential enhancement sites, evaluate the Russel sheep population as a source for possible future transplants, and aid in coordinated resource planning (eg. access management).

FINANCIAL SUMMARY

A. 1992/93 EXPENDITURES

A total of $374,631 was expended by the end of fiscal 1992/93. Three-quarters (74%) of program expenditures were designated to projects (inventory/assessment, enhancement/protection and evaluation), and less than 10% was directed to administration (Figure 1). A breakdown of expenditures by the six basic cost categories is presented in Table 1; an over expenditure of $4,631 (1.3%) was incurred.

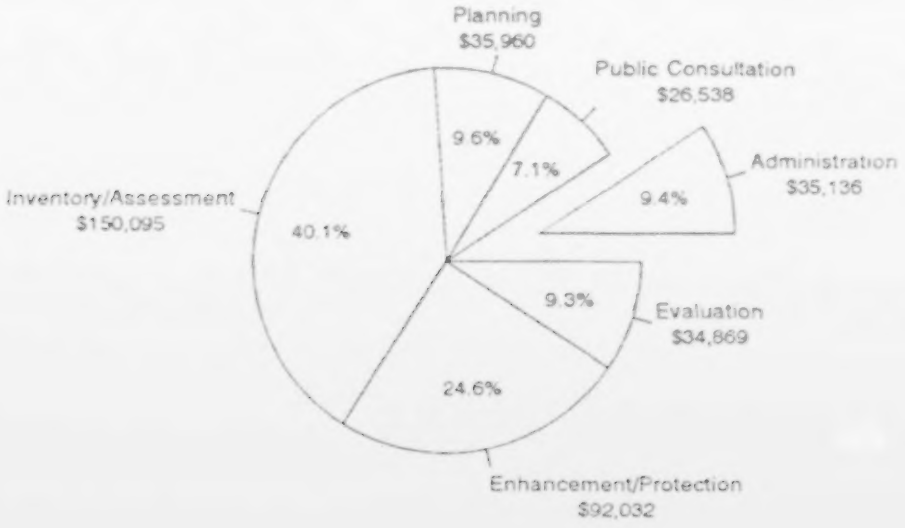

Figure 1. Cost categories of 1992/93 fiscal.

This year in the Wildlife Program, inventory/assessment projects consumed the majority of funds (40%). Twenty-five percent (25%) of program monies were used for direct enhancements. Inventory/assessment type projects provide an essential information base necessary to carry out enhancement and protection projects many years into the future. In the next few years, the Wildlife Program will see an increase in the enhancement portion as the results of the inventory/assessment are utilized.

Williston Wildlife personnel (biologists and co-op student) worked a total of 2.25 person-years during the 1992/93 fiscal; 70% of staff time was spent on actual projects. Only two projects necessitated more than 10% of staff time: Wetlands Enhancement (19.1%) and Caribou Habitat Selection (15.9%).

Table 1. Fiscal 1992/93 expenditures and budget summarized by the six basic cost categories.

Cost Category	Description	Project Costs	Total Expended	Total Budgeted
ADMINISTRATION[1]			$35,136	$36,680
PLANNING[2]			$35,960	$33,500
PUBLIC CONSULTATION[3]			$26,538	$23,930
INVENTORY/ASSESSMENT	Forage Enhancement - Peace	$413		
	Forage Enhancement - Finlay	$3,182		
	Forage Enhancement - Parsnip	$1,455		
	Elk Transplant Feasibility	$2,466		
	Wetlands Enhancement	$10,741		
	Dunlevy Wildlife Viewing	$298		
	Peace Caribou/Elk	$5,856		
	Upland Furbearer	$11,448		
	Omineca Mtn. Caribou	$49,690		
	Ungulate Diet Analysis	$5,885		
	Habitat Mapping	$44,162		
	Russel Range Inventory	$14,499	$150,095	$148,730
ENHANCEMENT/PROTECTION	Forage Enhancement - Peace	$22,193		
	Forage Enhancement - Finlay	$1,708		
	Forage Enhancement - Parsnip	$30,736		
	Elk Transplant Feasibility	$497		
	Wetlands Enhancement	$16,624		
	Mugaha Wildlife Viewing	$1,910		
	Dunlevy Wildlife Viewing	$337		
	Land Acquisition	$557		
	Peace Sheep	$17,470	$92,032	$99,760
EVALUATION/MONITORING	Forage Enhancement - Finlay	$3,257		
	Forage Enhancement - Parsnip	$957		
	Donna Crk/For. Biodiversity	$14,650		
	Wetlands Enhancement	$960		
	Peace Sheep	$15,045	$34,869	$27,400
TOTAL			$374,631	$370,000

[1] Administration includes staff wages and travel, office rent, furniture, retro-active pay, photo developing, office supplies, computer supplies, vehicle costs, and staff courses. A $4,000 administration fee payable to B.C. Environment was inadvertently not charged to the Compensation Program.

[2] Planning includes staff wages and travel, Technical Committee travel, vehicle costs, and the purchase of two snowmobiles.

[3] Public Consultation includes staff wages and travel, workshops, *Natureline*, supplies/services, and vehicle costs.

B. OUTSIDE FUNDING

Outside funding played an important role in many of the projects undertaken by the Compensation Program. Some projects could not have been initiated without these monies. The following agencies worked cooperatively with the Compensation Program and supplied time and/or financial support for the respective projects:

B.C. Environment (Victoria, Ft. St. John, Prince George)

- Caribou Habitat Selection - Omineca Mountains
  Net-gun specialist and personnel for caribou capture. Telemetry flight ($2,000) for collared caribou.
- Stone's Sheep Transplant - Mt. Monteith
  Personnel for sheep transplant and surveys.
- Omineca Habitat Mapping Project
  Soils specialist, correlators to review the vegetation and wildlife mapping, and mapping materials required for the project.
- Russel Sheep Inventory
  Experienced Stone's sheep inventory personnel.

Fletcher Challenge Canada Ltd.

- Donna Creek/Forestry Biodiversity Project
  Personnel and machinery required to harvest third treatment block, and food and accommodation at Munro Camp for PWWCP personnel and contractors while working on the project.
- Omineca Habitat Mapping Project
  Funding ($26,500) for the wildlife specialist, and personnel for map digitization and production of final maps. Reduced rate for food and accommodation at Munro Camp for contractors during the field work session of the project.

Habitat Conservation Fund

- Donna Creek/Forestry Biodiversity Project
  Funding ($13,500) for snag deterioration survey, map preparation, and breeding bird and furbearer transect layout.

Forest Service (Mackenzie)

- Omineca Habitat Mapping Project
  Funding ($11,500) for helicopter time during field work session.

APPENDIX A

Part 1a. Peace/Williston Wildlife Compensation Program reports

Part 1b. Peace/Williston Wildlife Compensation Program reports in preparation

Part 2. Other reports relevant to the Williston Reservoir area

Appendix A, Part 1a. Peace/Williston Wildlife Compensation Program reports.

The following reports are final, unpublished Wildlife reports. Reports are listed in reverse chronological order, and papers produced in the 1992/93 fiscal are highlighted in bold print.

The Compensation Program is named the *Peace/Williston Compensation Program*, however, prior to 1993, reports prepared for the Wildlife section referred to the Compensation Program as the *Williston Wildlife Compensation Program*.

Backmeyer, R.J.. 1993. Peace Arm radio-collared ungulate studies, April 1992 - March 1993. Williston Wildlife Compensation Program, Prince George, B.C. Interim Technical Report. 12pp plus appendices.

_____. 1992. Peace Arm radio-collared ungulate studies, May 1991 - March 1992. Williston Wildlife Compensation Program, Prince George, B.C. Interim Technical Report. 15pp plus appendices.

_____. 1991. Wildlife distribution and habitat use south of the Peace Reach of Williston Reservoir. Williston Wildlife Compensation Program, Prince George, B.C. Working Report. 19pp.

_____. 1991. Peace Arm Lake radio-collared ungulate studies, February and March, 1991. Williston Wildlife Compensation Program, Prince George, B.C. Interim Technical Report. 5pp.

_____. 1991. Williston Lake elk collaring (Peace Arm), March, 1991. Williston Wildlife Compensation Program, Prince George, B.C. Status Report. 5pp.

_____. 1991. Williston Lake Stone's sheep transplant, March, 1991. Williston Wildlife Compensation Program, Prince George, B.C. Status Report. 5pp.

Becker, Dana Q. 1992. Upland furbearer problem analysis. Williston Wildlife Compensation Program, Prince George, B.C. Working Report. 125pp.

Becker, G.K. 1992. 1991-92 Public Consultation Report. Peace/Williston Compensation Program, Prince George, B.C. 69pp.

Corbould, Fraser B. 1993. Chase Mtn/Butler Range caribou inventory, March 1993. Peace/Williston Compensation Program, Prince George, B.C. Status Report. 5pp.

_____. 1992. Wetlands enhancement 1992. Williston Wildlife Compensation Program, Prince George, B.C. Status Report. 4pp.

_____. 1991. Waterfowl and aquatic furbearer inventory and assessment of Tutu and Mugaha Bay wetlands, Mackenzie, B.C. Williston Wildlife Compensation Program, Prince George, B.C. Working Report. 30pp plus appendices.

_____. 1991. Wetlands enhancement, Tutu/Mugaha nesting islands, 1991. Williston Wildlife Compensation Program, Prince George, B.C. Status report. 2pp.

Davidson, Peter W. 1991. Ungulate census of drainages adjacent to the north shore of the Peace Arm, Williston Reservoir, March 11-13, 1990. Williston Wildlife Compensation Program. Working Report. 13pp.

_____. 1990. Mt. Frank Roy Stone's sheep transplant, March 1990. Williston Wildlife Compensation Program, Prince George, B.C. Status Report. 10pp.

_____. 1989. Mt. Frank Roy Stone's sheep transplant. Williston Wildlife Compensation Program, Prince George, B.C. Working Plan. 6pp.

Davidson, Peter W., and Rick Dawson 1990. Williston Wildlife Compensation Program Management Plan, 1990. Williston Wildlife Compensation Program, Prince George, B.C. 44pp.

Dawson, Rick. 1991. Wildlife Burn Plan - 1991: Mackenzie Forest District, west Finlay/Ingenika area. Williston Wildlife Compensation Program. 13pp.

_____. 1990. Wetland enhancement trial. Williston Wildlife Compensation Program, Prince George, B.C. Status Report. 6pp.

Dawson, Rick, Linda J. Murray, and Mari D. Wood. 1992. Wildlife tree maintenance and creation in managed ESSF forests in the Mackenzie District. Working Plan. Williston Wildlife Compensation Program, Prince George, B.C. 24pp.

Dawson, Rick, and Mari D. Wood. 1991. Annual report, 1990-91. Williston Wildlife Compensation Program, Prince George, B.C. 5pp.

Hatler, David F. 1990. Wildlife distribution and habitat use in the northern Williston Reservoir area, British Columbia, winter 1990. Williston Wildlife Compensation Program, Prince George, B.C. Working Report. 17pp plus appendices.

_____. 1989. Moose winter distribution and habitat use in the southern Williston Reservoir area, British Columbia, 1989. Williston Wildlife Compensation Program, Prince George, B.C. Working Report. 25pp plus appendices.

Hirst, S.M. 1990. Ungulate census of north shore and adjacent areas, Peace Arm, Williston Reservoir, March 1989. Williston Wildlife Compensation Program, Prince George, B.C. Working Report. 10 pp plus appendices.

Ketcheson, Maureen V., and Evan McKenzie. 1991. Report, vegetation map, ungulate capability map and habitat enhancement plan for Dunlevy Inlet (Block A, D.L. 754 Williston Lake, B.C.). Williston Wildlife Compensation Program, Prince George, B.C. Working Report. 12pp plus appendices.

Martin, Tracey L. 1992. Waterfowl inventory and wetlands enhancement summary. Williston Wildlife Compensation Program, Prince George, B.C. Working Report. 22pp plus appendices.

McKenzie, Evan. 1993. Omineca biophysical mapping project: maps and legend. Peace/Williston Compensation Program, Prince George, B.C. Working Report. 125pp.

Murray, Linda J. 1992. Cavity Nester Habitat Selection Project, phase 1 report: snag deterioration. Williston Wildlife Compensation Program, Prince George, B.C. Status Report, 11pp.

_____. 1992. Cavity Nester Habitat Selection Project, phase 3 report: map preparation and transect layout. Williston Wildlife Compensation Program, Prince George, B.C. Status Report. 9pp plus appendices.

Pomeroy, Patrick M. 1989. Appraisal Report re: Block A, D.L. 754, except plans 30912 and 30913 Williston Lake. Nature Trust of B.C., West Vancouver. 19pp.

_____. 1989. Appraisal Report re: D.L. 2042, excluding plan 17557, Williston Lake. Nature Trust of B.C., West Vancouver. 21pp plus appendices.

_____. 1989. Appraisal Report re: D.L. 3181, Williston Lake. Nature Trust of B.C., West Vancouver. 21pp plus appendices.

_____. 1989. Appraisal Report re: Lot 1, Plan 16495, D.L. 329, and Lot 3, Plan 16495, D.L. 330, Williston Lake. Nature Trust of B.C., West Vancouver. 22pp plus appendices.

Read, D.J. 1991. Public Consultation Report 1990/91. Peace/Williston Compensation Program, Prince George, B.C. 16pp plus appendices.

Thompson, C.E., and L.E.H. Lacelle. 1992. Biophysical habitat classes for the Peace Arm of the Williston Reservoir study area. Williston Wildlife Compensation Program, Prince George, B.C. Working Report. 81pp.

Wood, Mari D. 1993. Wolverine Range woodland caribou inventory, February 1993. Peace/Williston Compensation Program. Status Report. 4pp.

_____. 1992. Annual Report 91/92. Peace/Williston Compensation Program, Prince George, B.C. 9pp.

_____. 1992. Donna Creek Biodiversity Project (Cavity Nester Habitat Selection), progress report 1992/93. Peace/Williston Compensation Program, Prince George, B.C. Working Report. 9pp plus appendices.

_____. 1992. South Peace Arm Stone's sheep inventory, June 1992. Peace/ Williston Compensation Program, Prince George, B.C. Status Report. 5pp.

_____. 1992. South Peace Arm Stone's sheep inventory, December 1992. Peace/ Williston Compensation Program, Prince George, B.C. Status Report. 5pp.

_____. 1992. Project Highlights: 1992. Williston Wildlife Compensation Program, Prince George, B.C. 15pp.

Wood, Mari D., and Fraser B. Corbould. 1993. Project Highlights: 1993. Peace/Williston Compensation Program, Prince George, B.C. 9pp.

Appendix A, Part 1b. Peace/Williston Compensation Program (Wildlife) reports in preparation.

Finlay drainage elk transplant. Working plan.

Finlay drainage prescribed burning. Five year plan.

Frank Roy sheep transplant. Status report.

Omineca Mountains woodland caribou. Working plan (Phase 1).

Omineca Mountains woodland caribou. Working plan (Phase 2).

Omineca Mountains woodland caribou. Interim report.

Omineca River forage enhancement. Five year plan.

Peace Arm prescribed burning plan. Five year plan.

Russel Range Stone's sheep and mountain goat inventory. Status report.

Snow depth survey: 1991. Status report.

Ungulate diet analysis. Final report.

Appendix A, Part 2. Other reports relevant to the Williston Reservoir area.

The following reports are final, unpublished reports relevant to the Williston Reservoir area.

Backmeyer, R.J. 1990. Dunlevy Inlet wildlife viewing development plan. North Peace Nature Club and Ministry of Environment, Ft. St. John, B.C. 66 pp plus appendices.

Backmeyer, R.J., D. Culling, and B. Culling. 1992. Peace subregion prescribed burning program evaluation. B.C. Environment, Ft. St. John, B.C. 88pp plus appendices.

Bonar, R.L. 1975. Wildlife resources and habitat in the Williston Reservoir area of north central B.C.. Unpubl. Rep., E.L.U.C. Secretariat, Victoria. 274pp.

B.C. Environment. 1990. Williston Lake 1990 fire plan: Dawson Creek District. B.C. Environment, Ft. St. John, B.C. 26pp.

_____. 1990. Williston Lake 1990 fire plan: Mackenzie District. B.C. Environment, Ft. St. John, B.C. 37pp.

Knapik, M., and R. Schoenenberger. 1989. Williston Lake drainage five year prescribed burn plan. B.C. Environment, Ft. St. John, B.C. 108pp.

_____. 1989. Williston Lake prescribed burning work plan. B.C. Environment, Ft. St. John, B.C. 47pp.

McLellan, Bruce N. 1989. Assessment of grizzly bear ecology in the Ospika drainage as it relates to proposed timber harvest. Fletcher Challenge Canada Ltd. 21pp.

Meidinger, D., T. Lewis, and R. Kowall. 1986. Biogeoclimatic zones and subzones of the northern portion of the Mackenzie Timber Supply Area, British Columbia. Ministry of Forests, Victoria, B.C. 37pp plus appendices.

Ministry of Environment. 1989. Finlay-Omineca strategic environmental plan: plan summary (revised). Planning and Assessment Branch and Northern Region Ministry of Environment. 67pp.

_____. 1982. A resource management strategy for the Williston Basin. Ministry of Environment, Prince George, B.C. 76pp.

Murray, Linda J. 1992. Habitat use and seasonal movements of radio-collared caribou in the Peace Subregion, 1988-1990. B.C. Environment. 48pp plus appendices.

Parminter, John. 1986. A field guide to the vegetation terrain and fire ecology of the biogeoclimatic zones and subzones of the northern portion of the Mackenzie Timber Supply Area. Ministry of Forests, Victoria, B.C. 14pp plus appendices.

_____. 1984. Fire-ecological relationships for the biogeoclimatic zones of the northern portion of the Mackenzie Timber Supply Area. Ministry of Forests, Victoria, B.C. 97pp plus appendices.

_____. 1984. Fire-ecological relationships for the biogeoclimatic zones of the northern portion of the Mackenzie Timber Supply Area: summary report. Ministry of Forests, Victoria, B.C. 58pp plus appendices.

Ritchie, Chris. 1992. Kennedy Siding caribou survey. B.C. Environment, Prince George, B.C. 3pp.

_____. 1991. Wildlife survey of the Cirque mine site area. Ministry of Environment, Prince George, B.C. 6pp.

_____. 1991. Wildlife survey summary report: Misinchinka and Copley Ranges. Ministry of Environment, Prince George, B.C. 6pp.

_____. 1991. Thutade Lake and Kemess Creek wildlife survey. Ministry of Environment, Prince George, B.C. 5pp.

Sumanik, K., and A.S. Harrison. 1968. Williston Report. Draft Report. Ministry of Environment, Prince George, B.C. 76pp plus appendices.

Thompson, C.E. 1992. Habitat monitoring evaluations in the Peace subregion. B.C. Environment, Ft. St. John, B.C. 39pp plus appendices.

Watts, Glen S. 1991. Sifton Range survey. Ministry of Environment, Prince George, B.C. 8pp.

_____. 1990. Wrede Range, Ingenika Range and Lay Range survey. Ministry of Environment, Prince George, B.C. 8pp plus appendices.

Watts, Glen S., and Kenneth N. Child. 1986. A survey of Stone's sheep and mountain goats in the Russel Range (M.U.'s 7-39 and 7-40). Ministry of Environment, Prince George, B.C. 13pp plus appendices.

_____and_____. 1986. Survey of mountain goats and Stone's sheep in the Fishing Range and the Swannell Range (M.U.'s 7-39 and 7-40). Ministry of Environment, Prince George, B.C. llpp.

_____and_____. 1986. Survey of caribou and mountain goats in the Lawyers Pass area (M.U. 7-39). Miinistry of Environment, Prince George, B.C. 9pp.